

# Middleton Algebra 1

3/8/03

Team Solutions

MARCH 2003 TERM

1

$$A = -3 - 25 - 1 - 1 + 25 = -5$$

$$B = 5 + 6 - 18x + 15x - 12 + 3x - 7 = -8$$

$$C = 16 + 64 + 26 \sqrt{13} - 10 = 72$$

$$-5 \sqrt{72} = -5(-9) = 45$$

45

6

ODDS +  
EVEN S  
-1, 0, 13  
YES YES  
NO NO  
SUM + SUM = EVEN YES  
1 + 1 = 2 NO  
4 YES X 2 NO =

ODD X ODD = ODD YES  
EVEN X ODD = ODD YES  
EVEN X EVEN = EVEN YES  
All work YES

8

2

A  $L = 2x$   $2x + x = 15$   $x = 5$   $L = 10$

B  $10x + 5(63 - x) = 505$   $5x + 315 = 505$   $D = 38$

C  $100m$   $x$   $x - 5$   $25 - x = 3(x - 5)$

HEX  $30 - x$   $25 - x$   $40 = 4x$   $x = 10$   $10m = 10$

68

3

$11 \triangle C =$

$11^2 + 60^2 = c^2$   $x^2 + (2x-1)^2 = (2x+1)^2$

$3721 = c^2$   $x^2 + 4x^2 - 4x + 1 = 4x^2 + 4x + 1$

$c = 61$   $x^2 - 8x = 0$   $2x^2 - 6x = 0$

$x(x-8) = 0$   $c = 17$   $x^2 - 3x = 0$

$x = 8$   $61$   $x(x-3) = 0$

$17$   $c = 5$

83

8

$\frac{3y}{y+3(y+2)} = \frac{5y}{(y+3)(y-1)} - \frac{2}{(y+2)(y-1)}$

$3y^2 - 3y = 5y^2 + 10y - 2y - 6$

$0 = 2y^2 + 11y - 6$

$0 = (2y - 1)(y + 6)$   $y = \frac{1}{2}, -6$

$y^2 + y + y^2 + 2y = y^2 - y$

$y^2 + y + y^2 + 4y = 0$

$y(y + y) = 0$   $-6 - 4$   $0$   $\frac{1}{2}$

$y = 0, -4$

0

4

$2R - 6 + SR + 20 = 9$  NO

$30 - 15x = 30 - 15x$  YES

$18x - 36 = 11x - 35 - 1 + 4x$  YES

$20x - 5 = 20x - 6$  NO

$24x + 3 = 24x + 12$  NO

$9x + 9 - 3x = 6x + 2 - 4$  NO

2

5

30 numbers  $Sum = 90$

4  $43^2$   $mode = 43$

Median =  $\frac{1}{2}(15th + 16th \text{ num.})$

$\frac{1}{2}(28 + 31) = 29.5$

mean =  $\frac{90}{30} = 3$

102.5

A B A MUST = 1

A/A

C MUST = 8 or 9

Day 1 +3

Day 2 +12

16

+48

Day 3 64

C MUST = 9

B MUST = 2

M = 64

C = 9

C + M = 73

# Alg 1 Team Solutions Multiletter 3/8/2013

9) A)  $\frac{II}{10} + \frac{II}{10} = \frac{3}{4}$  B)  $\frac{II}{10} + \frac{II}{15} = 1$  C)  $\frac{II}{10} - \frac{II}{10} = 1$

$\frac{x}{5} + \frac{x}{12} = \frac{3}{4}$   
 $\frac{12x + 5x}{60} = \frac{3}{4}$   
 $\frac{17x}{60} = \frac{3}{4}$   
 $17x = 45$   
 $x = 2\frac{3}{17}$

$M_{12}$   $2x + x = 9$   $M_{4x}$   $2x + 8 = 4x$   $M_{36}$   $4x - 3x = 36$   
 $x = 3$   $4 = x$   $x = 36$

A = 3 B = 4 C = 36  
 D)  $\frac{II}{10} + \frac{II}{10} - \frac{II}{10} = 1$   
 $\frac{x}{12} + \frac{x}{15} - \frac{x}{20} = 1$   
 $M_{60}$   $5x + 4x - 3x = 60$   
 $D = 10$   $x = 10$

$\frac{c}{A+B+D} = \frac{36}{3+4+10} = \frac{36}{17}$   
 $\frac{36}{17}$  or  $2\frac{2}{17}$

12)  $101 - 102 = 1$  Answer  $101 - 10^2 = 1$

13)  $\sqrt{6x+7} = x+2$   $\sqrt{3x+3} = x-5$   $\sqrt{4x+5} = 2x-5$   
 $6x+7 = x^2+4x+4$   $3x+3 = x^2-10x+25$   $4x+5 = 4x^2-20x+20$   
 $0 = x^2-2x-3$   $0 = x^2-13x+22$   $0 = 4x^2-24x+20$   
 $0 = (x-3)(x+1)$   $0 = (x-11)(x-2)$   $0 = x^2-6x+5$   
 $x = 3, -1$   $x = 11$   $0 = (x-5)(x-1)$   
 $x = 5$

$3 + -1 + 1 + 5 = 18$   $x^2 - 5x - 6 = 0$   $x^2 - 5x + 6 = 0$   $x^2 - 5x - 7 = 0$

$-\frac{b}{a} = \frac{6}{1} = 6$   $-\frac{b}{a} = \frac{6}{1} = 6$   $-\frac{b}{a} = \frac{7}{1} = 7$   
 $\frac{c}{a} = \frac{-6}{1} = -6$   $\frac{c}{a} = \frac{6}{1} = 6$   $\frac{c}{a} = \frac{-7}{1} = -7$   
 $5 + -6 + 5 + 6 + 5 + -7 = 15 - 9 = 8$

15)  $-\frac{3}{5}$   $\frac{15}{15}$   $\frac{34}{28}$   $-\frac{1}{3}$   $\frac{6}{6}$   $\frac{-16}{15}$   $\frac{-5}{-2}$   $-\frac{4}{4}$   
 $15$   $25$   $23$   $6$   $-18$   $21$   $-12$   $0$

I USED SYNTHETIC DIVISION AS A STARTUP, COULD US REGULAR LONG DIVISION.  
 STOP ANYTHING TIMES 0 IS 0

10) Use graphing calculator on  $\frac{-b}{2a}$   
 $\frac{-(-1)}{2(1)} = \frac{1}{2}$   $\frac{-(-3)}{2(1)} = \frac{3}{2}$   $\frac{-(-2)}{2(-1)} = 1$   $\frac{-(-8)}{2(2)} = 2$   
 sum =  $\boxed{5}$

11) Use graphing calculator or solve the system  
 \* B & C D & E ARE MULTIPLES IN X AND Y  
 THUS THEY ARE PARALLEL OR COINCIDENT  
 A)  $M_4$   $12x + 20y = -28$  F)  $M_3$   $9x + 6y = 36$   
 $M_{15}$   $-25x - 20y = -50$   $M_2$   $20x - 6y = 2$   
 $-13x = -78$   $19x = 38$   
 $x = 6$   $x = 2$   
 $3(6) + 5y = -7$   $3(2) + 2y = 12$   
 $y = -5$   $y = 3$   $(6, -5)$   $(2, 3)$

SUM  $\boxed{(8, -2)}$